# THE CONSERVER PHILOSOPHY: THEORY INTO PRACTICE AT THE LOCAL LEVEL

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OCCASIONAL PAPER NO. 2
June 1980

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# THE CONSERVER PHILOSOPHY: THEORY INTO PRACTICE AT THE LOCAL LEVEL

## A. INTRODUCTION: GLOBAL CONCERNS AND LOCAL ACTIONS

Global resources are finite, and unless present rates of consumption are reduced the future of civilization on spaceship earth is limited. Based on this realization, humankind must now reassess environmental potentials and limits in terms of alternative global futures. The logical alternative to existing attitudes and practices that have created this consumer-oriented lifestyle is the practical application of a conserver philosophy.

A conserver society believes in 'doing more with less' and utilizes an approach where the quality of life is not sacrificed for the sake of economic gain alone. It accepts and promotes continued economic growth, but stresses the idea that there is a global interdependence in which the "world is the finite host of humanity."[1] The need therefore, is for the efficient utilization of the resource to match the work done to produce a particular function or activity. Further to this concept (known as the theory of thermodynamics) there must be total costing of all future developments to include the social, environmental, and future economic costs of any project.

In summary, a conserver society can be defined[2] as a society that believes in the following principles:

1. The promotion of economy of design in all systems;
2. The reuse, recycling, and wherever possible reduced use of the resource;
3. The questioning of the ever-growing per capita demand for consumer goods; and
4. The recognition that a diversity of solutions in many systems such as energy and transportation might in effect increase their overall economy, stability, and resiliency.

It is this recognition of diversity that bridges the gap between the philosophy of the approach and its implementation. If the assumption that diversity is one of the primary goals of a conserver society is accepted, then it can also be assumed that each community, because it is diverse and specialized, will logically use the appropriate approach for their unique environment.

While the philosophy of conserving is a global concern its implementation requires local actions through responsible participation and innovation on the part of all individuals. Because the local level of government is closest to the people, is both recognizable and understandable, and has the most direct impact on the public, it is the most appropriate level to implement many of the conserver measures. This localism encourages the individual to become more responsive, innovative, informed, and communicative in the decision-making process. While it may be argued that participation has not been a strong tradition in municipal government, this paper firmly believes that citizens do have the capacity to learn participation through an educative process which can occur most effectively at the local level.

What will eventually be created through this educative system is both an informed public and a more knowledgeable group of decision-makers that will gain a better understanding of what the conserver society can accomplish. Further, by this sense of "independence and freedom that comes from self-reliance,"[3] the control and monitoring of local technologies (such as solar power) by individuals and community groups can also be effected because they can be specifically tailored to local needs.

Even though there is increasing acceptance of the need for a conserver approach, it is the transformation from theory into practice which still requires attention. This paper starts from the point that energy represents the tie that binds the framework through which all conserver philosophy can be implemented. The major focus therefore, is on putting conserver theory into practice at the municipal level.

## B. CONSERVER PRACTICE: NUTS-AND-BOLTS PLANNING

Local planning and decision-making throughout this century has been based on the acceptance of growth and growth management. This has resulted in an approach to planning which encourages rather than discourages the inefficient use of resources.

This section of the paper builds on the previous discussion of conserver theory and outlines a nuts-and-bolts course of action through which the approach can be implemented. This action is outlined in four sub-sections: (1) Official Plans; (2) Zoning and Land Use Policies; (3) Development Controls; and (4) Education.

## 1. Official Plans

The Official Plan remains the fundamental planning tool at the local level. It establishes a statement of goals and objectives which guide the municipality in broad policy-making decisions that directly affect the growth/non-growth of the community. Because Official Plans play such a pivotal role in setting out guidelines for municipal planning activity, they offer a major opportunity to implement the ethic of conserverism. One of the best examples of a municipality which has utilized this tool effectively is the City of Davis, California.

During the early 1970's Davis was experiencing a rapid increase (over 13% in one year)[4] in population. This increase, coupled with the election of a group of political reformists to municipal council led to a reworking of the general plan to control and manage new growth. A survey of the 35,000 residents of Davis during this revision indicated that almost 75% of the population favoured a maximum population of 40,000 by 1990. Only 17% of all residents strongly encouraged growth.[5]

After incorporating all information from the public, the following objective[6] was developed for the General Plan:

> Planning, direction and control of growth in such a manner that the urban area population approximates or is consistent with that generated by internal growth, and in light of regional needs; on the basis of current figures that is estimated to be a maximum of 50,000 population by 1990.

The number and type of concerns which Davis planners included in the plan were expanded to include areas such as ecosystem; growth; internal growth; external growth; growth generators; prime agricultural land; and sprawl. These concerns are indicative of the conserver philosophy the plan is attempting to address. The Davis community has, therefore, attempted to create a plan which moves beyond traditional policies that deal primarily with technical and economic elements to a document which stresses social and environmental concerns.

The David General Plan contains eight major policy sections. They are (in the same order as they appear in the Plan) as follows:

1. Conservation;
2. Open Space;
3. Recreation;
4. Arts;
5. Housing;
6. Circulation - Transportation;
7. Noise; and
8. Land Use.

The element of most importance to this paper is the Conservation Section. The initial goal statement in this section[7] is as follows:

> Conservation of the Physical Environment of the City of Davis in order to enhance the relationship between residents of the City and their physical surroundings, and to enhance the viability of the natural and human ecosystems.

Proceeding from this statement is a general Conservation objective:[8]

> Education of the citizens of Davis to a greater awareness of man's role in shaping the natural environment in order that they may develop a greater respect for that environment and their relationship to it.

Perhaps the most important policy in the Official Plan deals with energy use and conservation in the city. To facilitate the more efficient use of energy, the plan advocates a building code which outlines appropriate materials and insulation, design and orientation of structures, and construction methods to minimize energy requirements for lighting, heating, and cooling. The plan also requires appropriate vegetation and minimum use of pavement in order to protect and induce warmth from the sun in cool periods and to reflect the sun in hot periods.

The plan also stresses energy conservation through the use of bicycles. Active promotion of this policy, as well as ideal climatic conditions and the ease in getting around the city by bicycle has resulted in the use of approximately 25,000 registered bicycles[9] in Davis.

Recycling of non-renewable materials is also a prime objective in the Conservation section of the plan. Residents are encouraged through the use of educational sessions both within and outside the school system to participate in city-wide recycling programs. Information is provided on what articles are considered recyclable; the development of alternative items to non-renewables; the encouragement of State laws which emphasize the importance of recycling; and the encouragement of a ban on certain types of containers.

Almost all policies of the Davis plan stress energy conservation. The section on Open Space, for example, outlines the importance of allocating green space which is close to residents to permit easy access by foot or bicycle rather than by car. The Housing component analyses problems associated with densities and advocates the creation of new standards which encourage sincere efforts on the part of developers to create energy conscious subdivision plans. Transportation policies emphasize the use of bicycles and public transit in order to minimize pollution and conserve energy. Further, the development of an automobile circulation system must be "consistent with the goal of reduced automobile travel."[10]

The use of official plans to promote energy conservation, therefore, is not an idealistic goal but a very practical one. It represents, however, only one tool for implementing a conserver approach at the local level.

## 2. Zoning and Land Use Policies

Zoning by-laws regulate the use of land for municipal development. Most by-laws have, however, grown too restrictive and over-specialized in their control over the use of land, and as a result have made it difficult to integrate a conserver orientation into development. Traditional residential subdivisions, for example, have been designed more for energy consumption than energy conservation because principles of land-use and the development process during the past 30 years have been based on the continued supply of cheap energy.[11] There has been some attempt to introduce conservation practices into the process, and more recent residential by-laws address the problems of efficiency and "appropriate density of habitat arrangement of land-use, geometric pattern (i.e., grid street pattern versus a sinuous street pattern which had become the convention in the past), and... orientation for maximum solar conversion arrangements."[12]

In 1977, the Canadian development firm, Cadillac Fairview Corporation, developed a master plan for the new community of South March, south of Ottawa. The design of South March incorporated many essential features of an energy efficient community and was based on land-use practices which would be subsequently incorporated into the municipal zoning by-law.

The design is comprised of generally high density semi-detached homes, group houses, and garden apartments which are all oriented towards the sun for solar power use. All housing units face streets which surround a large grid block of homes. While these grid blocks will be linear or rectangular in design, they will still be responsive to natural terrain and individual houses "will be positioned along the edges of the large blocks in a linear pattern, which has a high efficiency for residential land-use and minimal sunlight shadowing."[13]

Land use patterns in South March have been created to foster integration of activities. Housing developments, for example, will adjoin recreational areas so that residents can walk rather than drive to recreational activities.

The orientation of housing units and geometry of the street pattern will also work together in creating a conserver approach to land use planning. Window placement in homes -- large south facing windows and small windows to the north -- can create a substantial reduction in energy consumption. It is also generally accepted that streets designed in an east-west pattern assist in channelling cool summer breezes through a developed area.[14] In winter months, therefore, breezes flow with the street rather than directly against the homes and consequently penetrating the houses walls.

There is a major drawback to these approaches: all of the changes which can be made in zoning and land use policies are related to the development of new residential areas. How can conserver practice be introduced into existing residential, commercial and industrial sites?

The initial step in dealing with existing areas is knowing, through an energy consumption analysis, where and how much energy is being used. The City of Portland, Oregon has developed an energy zoning strategy which can be used as a model for other municipalities. Portland has been divided into five major zones (Table 1) which are ranked according to their energy efficiency. The purpose of these divisions is to define high priority areas for capital expenditures in order to bring an area up to energy efficient standards. The impact of this zoning strategy is that municipal decision-makers "can weigh the potential impact on community energy use against other priorities for capital investment."[15]

An example of the strategy in practice can be illustrated by an analysis of the impact of industry on an adjacent residential neighborhood. If the industry is located within the neighborhood, energy 'points' are awarded because jobs are within walking distance of workers. Using this type of system, municipal officials are able to define areas where conversion from residential to industrial or commercial uses might be appropriate because it would bring workers closer to their place of employment and reduce energy used in driving to work.

TABLE 1

CITY OF PORTLAND ENERGY ZONES

| ENERGY ZONE | | EFFICIENCY RANKING |
|---|---|---|
| ZONE 1<br>Areas served by transit, | Sewered areas in Portland that are:<br><br>EITHER<br>Within 1/8 mile of 1995 transit routes or 1/3 mile of 1995 transit stations AND within 1/3 mile of major shopping centers AND within 1/2 mile of industrially or commercially zoned land.<br><br>OR<br>Within 1 mile of the central business district. | Excellent |
| ZONE 2<br>Areas served by transit, and shopping or transit and jobs. | Sewered areas in Portland that are:<br><br>EITHER<br>Within 1/8 mile or 1995 transit routes or 1/3 mile of 1995 transit stations AND within 1/2 mile of major shopping centers.<br><br>OR<br>Within 1/8 mile of 1995 transit routes of 1/3 mile of 1995 transit stations AND within 1/2 mile of industrially or commercially zoned land. | Good |
| ZONE 3<br>Areas served by transit, or shopping, or jobs. | Sewered areas in Portland that are:<br><br>EITHER<br>Within 1/8 mile of 1995 transit routes or 1/3 mile of 1995 transit stations.<br><br>OR<br>Within 1/3 mile of major shopping centers.<br><br>OR<br>Within 1/2 mile of industrially or commercially zoned land. | Fair |
| ZONE 4<br>Other sewered areas in Portland . | Other sewered areas in the City of Portland that are not in Zones 1, 2, or 3. | Poor |
| ZONE 5<br>Unsewered areas & areas outside city boundaries. | Unsewered areas in Portland and all areas outside present City boundaries. | Very poor |

Source: Portland, Energy Conservation Choices for the City of Portland, Vol 6: Project Overview (Portland: Policy Analysis Section, Bureau of Planning, 1977), p. 10.

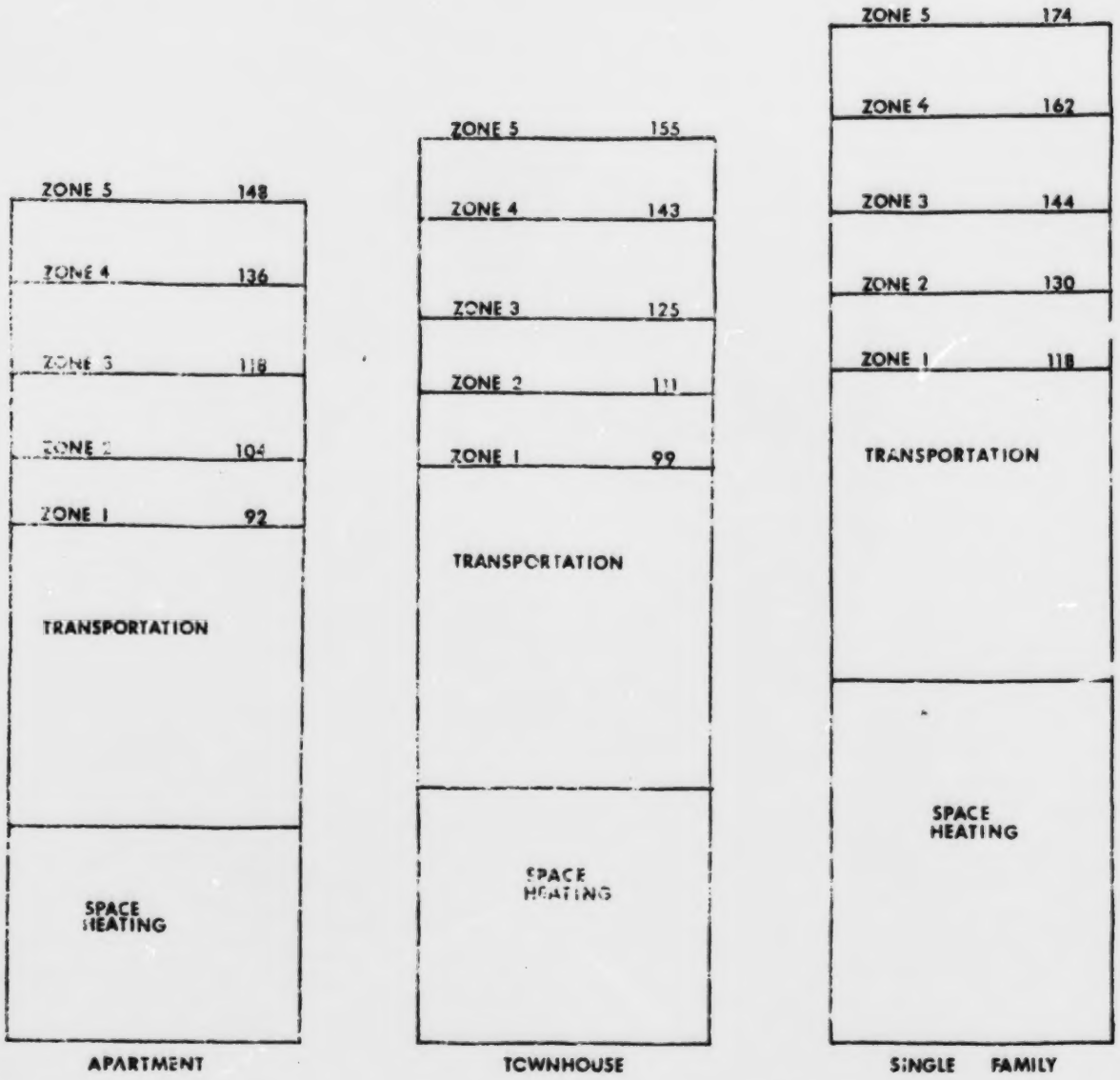
Household energy use( Figure 1) for each of these five energy zones illustrates for example, that an average family occupying either a townhouse, apartment, or single family home in Zone 1 uses approximately 35% less energy than it would be living in the same type of unit in Zone 5.[16] With this data, it would be possible to evaluate future modes of transportation for Zone 5 to upgrade the energy efficiency of that particular zone.

In summary, zoning utilizing this strategy has several advantages:[17]

- Local officials could permit new development only in areas of the city having low energy costs for services and transportation.
- Zoning standards could encourage energy saving and development such as cluster and multi-family housing rather than scattered, single family housing units; or it could be used to encourage construction of 'in-fill' housing on vacant, single parcel lots.
- Building permit decisions could promote energy efficiency with permit preferences granted for multiple-family housing, for efficient architectural design and construction standards and for innovative energy sources such as wind and solar use.
- Communities could up-date their comprehensive plans to consider the energy implications of long-range land use planning.

The City of Davis also utilizes conserver-oriented zoning practices. In Davis, zoning by-law changes were introduced to allow fences and hedges to be made higher and set closer to the street which will ultimately aid in the use of solar heat and reduce fuel use in winter. Planners concluded that in order for residents to take advantage of the sun during the winter months they must have space between the fence and window (Figure 2) in order to allow heat generated from a low angled winter sun to enter windows.[18]

Figure 1: City of Portland Household Energy Use




Source: Portland, Energy Conservation Choices for the City of Portland, Vol. 6: Project Overview (Portland: Policy Analysis Section, Bureau of Planning, 1977), p. 12.

Davis City Council has actively approved and encouraged cottage industry which permits residents to operate small businesses in their homes. The organization of small, neighborhood farmers' markets has also been promoted so that rather than driving to distant shopping centres to do weekly shopping, residents can now walk or cycle to a local market. This further contributes to greater spending within the local economy which benefits all citizens.

Finally, Davis has examined reducing street widths because presently acceptable widths constitute an unnecessary use of land. Both planning and engineering departments conclude that by using narrower streets less energy is consumed[19] in several ways:

1. They cost less and savings in land and site development could be as high as $1,000 per lot; and

2. They probably contribute to lower speeds by autos, thereby enhancing fuel efficiency and, incidentally, safety.

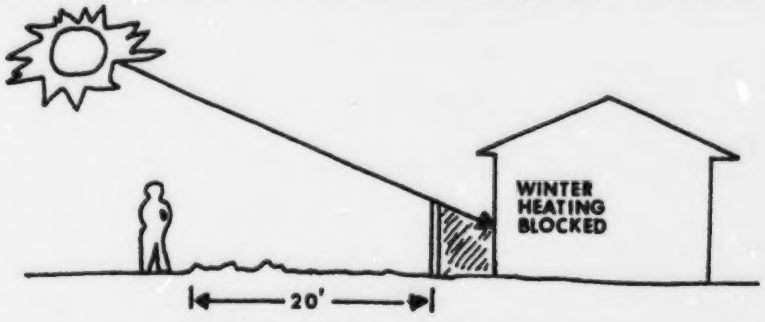
For streets which already exist, the street width can be reduced and a wider bicycle path/walkway can be incorporated into the existing right-of-way.

While the examples outlined in this section for introducing conserver practices through zoning and land use policies are limited, they have proven that small changes can result in energy conservation. Canadian municipalities only have to look at South March, Davis, and Portland to learn that conserver theory can be put into practice.

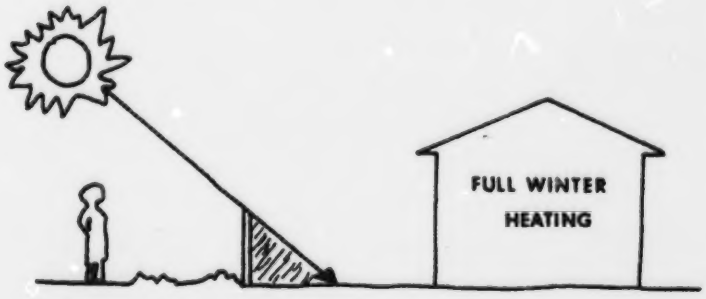
Figure 2: Fences and Hedges - City of Davis

# - FENCES & HEDGES

*By allowing fences and hedges to be higher and set back closer to the street, Davis gives its residents more yard space and uses natural solar heat to reduce winter fuel use.*




CURRENT FENCE REGULATIONS



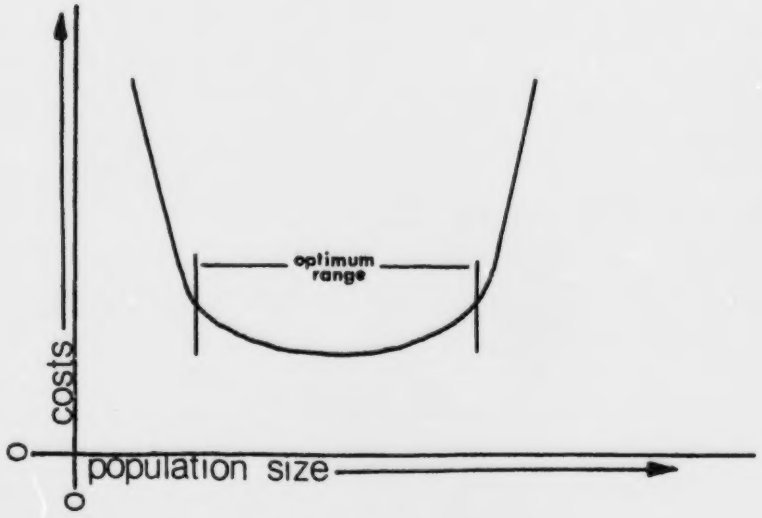

PROPOSED FLEXIBLE FENCE REGULATIONS

Source: James Ridgeway, The Davis Experiment One City's Plan to Save Energy (Washington, D.C.: The Elements, Public Resource Centre, 1977), p. 18

3. Development Controls

The attempt by many municipalities to impose development controls is a direct result of the undesireable costs (e.g., pollution, crime, congestion) that accompany increasing growth in urban centres. Some theorists deal with this cost/benefit problem by proposing cities of an optimum size where growth is limited to keep municipal costs at a level where they are still economical. Alonso, for example, describes the optimal point of population size as the point where costs to maintain municipal services within the municipality start increasing rapidly to cover the needs of an increasing population.

Figure 3: Optimum Size Population Curve




Source: William Alonso, "Urban Zero Population Growth,: in The No-Growth Society, eds. Mancur Olson and Hans H. Landsberg (New York: W.W. Norton, 1973), p. 200

Growth and development control is more than theory. Ramapo, New York, for example, is a classic case of a city which implemented growth control measures. In 1969, the town of Ramapo was facing increasing problems associated with urban sprawl and thus a set of phased growth zoning controls was implemented. A municipal development plan was also prepared which proposed that future development would only be allowed in areas where facilities and services such as drainage, sewerage, schools, parks, and firehalls were considered adequate.

There were two key development policies[20] that were basic to the managed growth control program in Ramapo:

- The population increase provided for in the Town's Development Plan should be kept to a moderate level so that the existing rural semirural and suburban character in different parts of the Town can be maintained and so that the existing and projected public facilities will not be overburdened.
- Provision should be made for adequate public facilities (e.g., transportation, circulation, education, recreation, etc.) consistent with the anticipated needs of a growing population.

This development plan was implemented through a capital improvement program which phased growth in conjunction with the development of adequate public facilities within the town. New developments were also evaluated on a point system based on criteria and standards set by the Ramapo administration and town council. Approval of projects was conditional on a satisfactory number of points being awarded.

The Ramapo case was one of the first effective, and legal forms of development control at the local level. Another important example is the case of Petaluma, California. During the late 1960's the City of Petaluna was also experiencing rapid development and municipal planners concluded in a report addressing the impact of this increasing growth on the provision of schools, that "if residential development were to continue at this ever-increasing rate, it would be impossible for school facilities to be provided."[21]

City council subsequently decided to hold a moratorium on the rezoning of all lands within the municipality, and proceeded, through an extensive citizen participation process, to consider the views of the public concerning such issues as urbanization, direction and control of growth, greenbelt areas, the Petaluma River, city beautification, industry, and housing needs. Based on this process an Official Development Policy was adopted by the city planning commission. To implement this policy statement through development standards and controls an Environmental Design Plan was prepared to consider all future development in terms of the following three factors:

1. Fiscal Impacts;
2. Environmental Impacts; and
3. Social Impacts

Based on these criteria, proposed developments in Petaluma are now phased in on a quota system in accordance with municipal plans. Council does retain the authority, however, to raise or lower the quota up to ten percent for any given area. It is important to note that after a two year trial period of development control, over 85% of Petaluma residents[22] indicated that they were satisfied with these growth control measures.

The City of Toronto Planning Board also has plans to integrate a growth control element into the development review process. All major developments within the City of Toronto will be evaluated in terms of their energy consumption, and such aspects as site and building orientation, and energy efficient design principles are considered a definite 'plus' for the processing and acceptance of a development proposal. Only when the city is satisfied that the development proposal meets standards will a development agreement[23] be drafted.

One of the most effective development control methods in practice is the development code used in Breckenridge, Colorado. In 1970 the Aspen Ski Corporation purchased the Breckenridge Ski Area,[24] and there was an immediate increase in the need for accommodation to house the number of skiers moving into the town both to vacation and live

permanently. The town, therefore, developed a set of ordinances which would require each project to be reviewed on its merits and its impact on the community: this became the basis for the Breckenridge Development Code which employed a merit point system. This advantage to this system is its flexibility. A proposed development may receive negative points because it is deficient in one category (e.g., architectural aesthetics), yet receive positive merit points because it is energy efficient.

The Development Code is divided into two primary sections: Absolute Policies and Relative Policies. The Absolute Policy section outlines a set of minimum standards (e.g., emergency access, underground utilities, drainage, etc.) to which any development must conform. The section on Relative Policies establishes a description of standards, each of which is assigned or designated a number of points. A proposal is then evaluated on its merits and contribution to the community in economic, environmental, and aesthetic terms. A negative point total implies that the project is not beneficial to the community and should not be approved by council while a positive total indicates approval.

The code has established a set of multipliers which determine the relative importance of every aspect possible for a development and the relative importance of these aspects to other major policies. These multipliers "range from one, a minor policy, to five, a very important policy."[25] If a proposal was judged on its effectiveness for energy conservation, for example, it might by interpreted this way:

| MULTIPLIERS | POLICY |
|---|---|
| 4 x (-2/+2) | Circulation: Pedestrian Orientation: Whenever appropriate to the site, its location and uses proposed thereon, a pedestrian orientation is preferred over vehicular traffic. |
| OR | |
| 3 x (-2/+2) | Energy Conservation: Structures shall be placed and oriented in such a way so as to be conducive to the conservation of energy and to the mitigation of the adverse elements of climate aspect, and elevation. |

Source: Breckenridge, Breckenridge Development Code (Breckenridge: Design Review and Planning Commission, 1978(, Ch. 21.

An advantage of this code is in the administration of the actual development process. Because the code represents a compilation of the previous zoning ordinances, development standards, and building regulations, all the responsibilities of the formaer individual boards of zoning adjustment, boards of building appeals, and municipal planning commissions have now been centralized in one Breckenridge Planning Commission.[26] This has effectively decreased the length of time involved in the development review process, and in time will create a more harmonious relationship between the private and public sectors involved in municipal development.

Each of the planning tools outlined in this section -- Official Plans, Zoning and Land Use Policies, and Development Controls -- represent approaches to implementing a conserver ethic. Perhaps the most crucial (but often least discussed) element however, in the process of change from consumer to conserver is education. Without the knowledge to understand why and how society must and can change, all of these tools remain ineffective.

4. Education

The key in the transition from a consumer to conserver society is re-education. This change must teach us that "man's relation to environment has to be based on reciprocity, involving both control and adaptation... environment can no longer be subordinate to man; it has to be accepted as a partner."[27] The planner can act as a pivot point for this process of change. This section, therefore, will examine several examples of the planner as educator guiding and/or initiating community concern and action.

Planners could initiate and organize municipal energy committees to develop conservation policies for the municipality. The City of Portland, for example, initially experienced considerable difficulty in obtaining information necessary for a comprehensive energy plan. It was decided to organize an energy team to locate, evaluate, and analyse existing energy sources and alternative strategies for the community.

The primary goals[28] of the team were as follows:

1. Reduce energy consumption and increase productivity and conservation management.
2. Develop energy usage and cost statistics.
3. Identify essential city operations, establish priorities and provide for auxilliary fuel supplies for emergency services.
4. Plan and provide for alternative fuels or sources of energy.

Planners can be involved by assisting residents in identifying energy waste through the techniques of energy auditing, inspections, and actively partic.pating in neighborhood association meetings to teach (and be taught) energy policy to/by the public. The planner in this process, therefore, becomes a two-way link in his capacity of community representative and municipal administrator.

An essential element in the educative process is the dissemination of information of/by the public to increase energy awareness. The Ontario Royal Commission on Electric Power Planning outlines several means by which this information can be distributed to the public:

1. Conservation Centres: the planning department in conjunction with other municipal authorities could set up a neighborhood store front energy office which would cater to people on the street. Curiousity alone would attract people to the office if not for the actual purpose of collecting information. The 'energy officer' would be in a sense a public relations official representing the municipality. These centres could only be effective however, if they are implemented in conjunction with all other information distribution systems.

2. Conservation Weeks: similar to other weeks donating time and thought to humane and essential issues (i.e., blood donor weeks), Conservation weeks would at least focus attention on the issue of energy conservation.

3. Guides Distributed to Homes: guides and information containing pertinent information regarding simple energy savings in the home could be distributed to the residents in a community with the monthly water bills, as is done in Anaheim, California.

4. Service Clubs: the planner or energy co-ordinator could make regular contact with the principal service or neighborhood clubs in the community. The chief task would be to instruct and guide these community leaders on how to go about conserving energy and the importance of influencing others.

5. Chamber of Commerce: in all municipalities, the Chamber of Commerce can play a major influential role in influencing local businessmen and industries as to any issue which requires attention, thus, the co-ordinator would have a great advantage if he/she was able to influence this dominant community organization.

6. Local Libraries: it is essential that the local library contain all documents pertinent to energy conservation and the ways in which that particular municipality can use its local resources to be more energy efficient.

7. Media: the planning staff should use the media to its maximum potential or advantage.

These means are easy to implement and have been used in many municipalities. It will, however, still take some time before the effectiveness of these programs can be evaluated accurately. In the meantime, more deep-seated changes should result from teaching future generations environmental awareness and energy consciousness. This teaching must be pursued at the local level in the school system. Children in the primary years could be oriented towards an appreciation of their environment simply by observing it. More class time should be spent taking young people outside the classroom to actively explore community resources.

In summary, this broad brush-stroke analysis has covered a spectrum of planning approaches from the very technical, such as the total review of existing official plans to integrate policies which are conserver oriented, to the introdution of a new conserver emphasis in the educational system. More importantly, however, is that each of these approaches illustrates practical ways that planners can follow to help ease society through the transition period from a consumer to conserver society.

## C CONCLUSIONS

This paper is based on the belief that global resources are limited, and unless present consumption rates are reduced, the future of humankind will be in doubt. It proposes that a new approach based on a philosophy of conservation must be implemented to redirect attitudes from a consumer to conserver focus. This conserver ethic questions the growth-oriented tradition, and instead offers a society which is still based on economic growth, but which is also concerned with the relation and interdependence of the human species with the natural environment. The argument is also made that because the local level of govenrment is closest to the people, it is the most appropriate level to put conserver theory into practice. It is this localism which provides the best possibility of an educative structure to advocate communication between/among politicians, planners, and citizens. In

this way, a municipality can implement measures which are most appropriate for that unique environment. Finally a more specific discussion of how official plans, zoning and land use policies, development controls, and a redirected educational philosophy can be used to foster a conserver attitude is presented.

Several conclusions can be reached:

- The implementation of a conserver ethic/practice must be adopted as a major goal for both public and private sectors, and all future resource policy must reflect this ethic.
- An educative process must be introduced into the system of local government to create increased community awareness and to make the transition to a conserver society more efficient, effective, and understandable.
- Each municipality must establish and use planning techniques which implement conserver measures and which are appropriate for that unique municipality.

If these approaches are utilized, everyone will benefit. Global survival, in fact, depends on this logic and implementation.

## FOOTNOTES

1. Science Council of Canada, Canada as a Conserver Society, Report No. 27 (Hull: Minister of Supply and Services Canada, 1978), p. 13.

2. Ibid., p. 23.

3. Ibid., p. 32

4. Gloria McGregor, Opportunities for Energy Conservation: The Davis, California Experience, Queen's Conference on Urban Planning (Kingston: Queen's University Press, 1979), p. 51.

5. City of Davis, California, General Plan-City of Davis 1974-1990 (Amended 1977), (Davis: Community Development Department, 1977) p. 4.

6. Ibid., p. 11

7. Ibid., p. 13

8. Ibid.

9. James Ridgeway, The Davis Experiment One City's Plan to Save Energy, (Washington, D.C.: The Elements, Public Resource Centre, 1977), p. 4

10. City of Davis, General Plan, p. 37

11. Greg Ross, Energy Conservation in Land Use Planning, (Brampton, Ontario: City of Brampton Planning Department, 1979), pp. 5-6.

12. Ibid., p. 5.

13. John Hix, South March Energy Conserving Community, (March Township: Cadillac Fairview Corporation, 1977), p. 4.

14. John Hix, "Energy Demand for Future and Existing Land Use Patterns", in Energy Conservation in Land Use Planning, ed. Greg Ross (Brampton, Ontario: City of Brampton Planning Department, 1979), p. 8.

15. City of Portland, Energy Conservation Choices for the City of Portland, Vol. 6: Project Overview, (Portland, Oregon: Policy Analysis Section, Bureau of Planning, 1977), p. 10.

16. Ibid., p. 13.

17. Ibid.

18. James Ridgeway, ed., The Davis Experiment, p. 18.

19. Ibid., p. 21

20. Manual S. Enamuel, "Ramapo's Managed Growth Program: After Five Years Experience," in Management and Control of Growth, Vol. III, R. Scott D. Brower, D. Miner, eds., (Washington, D.C.: Urban Land Institute, 1975), p. 303.

21. Frank B. Gray, "The City of Petaluma: Residential Development Control", in Management & Control of Growth, Vol. II, R. Scott, D. Brower, D. Miner, eds., (Washington, D.C.: Urban Land Institute, 1975), p. 150.

22. Ibid., p. 158.

23. City of Toronto Planning Board, Energy Policy for the City Better Services With Less Energy, (Toronto: Zoning and Official Plan Division, 1979), p. 37.

24. Anders J. Hauge, "Breckenridge Colorado Ski Resort, Town With An Innovative Development Control Program", in Practicing Planner, (Washington, D.C.: American Planning Association, December, 1978), p. 31.

25. Ibid., p. 32.

26. Ibid.

27. John Friedman, Retracking America A Theory of Transactive Planning, (New York: Anchor Press/Doubleday, 1973), p. 225.

28. City of Portland, Energy Conservation Choices for the City of Portland, pp. 3-4.

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The editors wish to thank Doug Watanabe, a 3rd year Urban and Regional Planning student at Ryerson for the cover design and preparation; and Michael Noonan, a 4th year student, for his assistance in the presentation of all graphics.